UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: Group: Attorney Docket # 2056

Applicant(s) : POLLNER, R.

Serial No. :

Filed :

For : SPARK PLUG FOR AN INTERNAL COMBUSTION ENGINE, AND METHOD FOR PRODUCING A SPARK PLUG

SIMULTANEOUS AMENDMENT

March 19, 2002

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

S I R S:

Simultaneously with filing of the above identified application please amend the same as follows:

In the Claims:

Cancel all claims without prejudice.

Substitute the claims attached hereto.

REMARKS:

This Amendment is submitted simultaneously with filing of the above identified application.

With the present Amendment applicant has amended the claims so as to eliminate their multiple dependency.

Consideration and allowance of the present application is most respectfully requested.

Respectfully submitted,

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What is claimed is:

1. A spark plug for an internal combustion engine, comprising a shell (12), an insulator (16) located in the shell and composed of a sintered ceramic material, as well as a center electrode (18) heat-fused in an insulator, and a terminal stud (22) that have an electrically conductive connection with each other and are located in the insulator,
wherein a cermet (28) abuts the center electrode, the ceramic phase of which is composed of the same or a similar material as the insulator, and the metallic phase of which is composed of a material having good electrical conductivity.

2. The spark plug according to Claim 1,
wherein the ceramic phase is composed of Al_2O_3.

3. The spark plug according to Claim 2,
wherein the ceramic phase comprises sintering auxiliary agents.

4. The spark plug according to [one of the preceding claims] Claim 1,
wherein the metallic phase is composed of a metal from the platinum group that is stable at sintering temperature.

5. The spark plug according to Claim 4,
wherein the metallic phase is composed of platinum or a platinum alloy.

6. The spark plug according to [one of the preceding claims] Claim 1,
wherein a ceramic granulated material is used to produce the cermet (28), the granules of which are provided with a surface coating of the material having good electrical conductivity.

7. The spark plug according to Claim 6,

wherein the granulated material has a granule size in the range between 90 μm and 150 μm.

8. The spark plug according to [Claims 6 and 7] Claim 6,
wherein the material having good electrical conductivity is pulverized, and the individual particles are less than 10 μm in size.

9. The spark plug according to [one of the preceding claims] Claim 1,
wherein the metallic phase of the cermet constitutes a quantity between 10 and 15 % by volume.

10. The spark plug according to [one of the preceding claims] Claim 1,
wherein the center electrode (18) has a diameter between 0.3 mm and 0.8 mm.

11. The spark plug according to [one of the preceding claims] Claim 1,
wherein a burn-off resistor (30) is located in the interior of the insulator, the conductive phase of which is composed of carbon.

12. A method for producing a spark plug using the following steps:
- a ceramic material is pressed to form an insulator (16) that is provided with a location hole (36) for a center electrode;
- a center electrode (18) is inserted in the location hole;
- a ceramic granulated material, the granules of which are provided with a coating of a material having good electrical conductivity, is filled in the insulator and compacted;
- the insulator is sintered.

13. The method according to Claim 12,
wherein Al_2O_3 is used as the ceramic material.

14. The method according to Claim 13,

wherein sintering auxiliary agents are used.

15. The method according to [one of the Claims 13 and 14] Claim 13, wherein Al_2O_3 is used as the material for the insulator.

16. The method according to [one of the Claims 12 through 15] Claim 12, wherein a metal from the platinum group that is stable at sintering temperature is used as the material having good electrical conductivity.

17. The method according to Claim 16,
wherein platinum or a platinum alloy is used as the material having good electrical conductivity.

18. The method according to [one of the Claims 12 through 17] Claim 12, wherein the granules of the ceramic granulated material are coated with the material having good electrical conductivity by stirring in a diluted suspension.

19. The method according to [one of the Claims 12 through 17] Claim 12, wherein the material having good electrical conductivity is applied to the granules of the granulated material using a binding agent.

20. The method according to Claim 19,
wherein the binding agent is an organic binding agent.

21. The method according to [one of the Claims 12 through 17] Claim 12, wherein the material having good electrical conductivity is applied to the granules of the granulated material via vapour deposition.

22. The method according to [one of the Claims 12 through 17] Claim 12, wherein the material having good electrical conductivity is applied to the granules of the granulated material via sputtering.